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ABSTRACT

Inservice training and staff development for rural schools are complicated by limited access to advanced training programs, limited financial resources, and a high attrition rate among rural educators. One way in which rural schools and universities can collaboratively work to fill this void is through distance education, which can help rural schools offer courses for which a certified teacher is not available, or deliver inservice training for faculty and staff. Because there are a number of distance education technology systems available, it is important that rural schools consider which system best meets their needs. One example of a rural training program that uses distance education in Project CREST (Collaboration in Rural Education for Special Teachers), undertaken by the Department of Special Education at Bowling Green State University (Ohio). Project CREST provides preservice and inservice training in special education service delivery and problem solving appropriate to rural areas. CREST faculty spend 1 week each month on site with participants. During the remaining 3 weeks, the Internet is used for videoconference transmission. Participants demonstrate competencies and skills at practicum sites. Since there are typically no long distance telephone charges, use of this configuration may provide a low-cost approach to the delivery of professional training in rural schools. (TD)

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DISTANCE EDUCATION AS A FUTURE TREND FOR PRE AND INSERVICE EDUCATION

Rural American Schools are often plagued with the problem of recruiting and retaining teachers who are knowledgeable about rural educational service delivery. University teacher training programs often are geared toward a curriculum that focuses on urban and suburban schools rather than on the rural school experience. One way in which rural schools and universities can collaboratively work to fill this void is through distance education. One such distance education program, Project CREST, has been undertaken by the Department of Special Education at Bowling Green State University.

Issues in Rural Staff Development

Regardless of location, both valuable inservice and appropriate staff development activities are difficult to provide to school personnel. Frequently, within any given setting, there are myriad issues that contribute to this difficulty such as the variance of staff needs, the quality of available personnel providing these activities, and the ability to plan adequate follow-up and follow-through activities that augment the teaching/learning accomplished through inservice or staff development. Of particular concern to rural schools are other problems that contribute to this difficulty in providing adequate service activities to school personnel. Problems that most of us are aware of include the isolation that is experienced by so many rural school districts, and the lack of attention that is paid to the needs of rural and small schools. This aspect of isolation results in a number of more specific problems that rural and small schools deal with - not experienced by urban and suburban schools - when they plan to give professional development opportunities to their school staffs.

Centers of higher education, both colleges and universities, are frequently located in urban and suburban locations; consequently, the rural and small school finds itself far removed from these resources, finds themselves cut off from the resources available to other school districts. This fact often impedes the development of strong and varied staff development activities in rural areas. As indicated by Berkeley and Dudlow (1991), inservice training for educators in rural schools is complicated by three factors: limited access to advanced training programs offered by colleges and universities; limited financial resources and support for travel to workshops, conferences, and other related professional development activities; and,

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because the attrition rate among educators in rural settings is so high, this prevents planning intensive ongoing staff development.

Other specific problem that interfere with the development of professional staff development programs by rural and small schools, and are problems not typically addressed by those providing the staff development include transportation barriers, cultural differences, geographic isolation, and the like. Many authors discuss the general problems involved with the provision of staff development, some focusing on particular problems of rural schools (e.g. Apps, 1991; Galbraith, 1990, 1991; Idol, 1983; Marrs, 1984; McKeachie, 1978). Inadequate staff development was cited by Helge (1981) as a major contributor to the personnel retention problems experienced in rural schools. Pointedly, Galbraith suggests that staff development may be a key to address the problems of attrition and retention of rural educators.

> Professional educator in rural America must be able to cope with sparsity, utilize community resources, be creative and visionary, and maintain a learner-centered orientation (Galbraith, 1992, p. 309).

These kinds of concerns must be addressed by a dynamic, responsive system of staff development.

Distance Education for Rural Schools

Distance education is becoming a potential alternative delivery method for many rural schools. School reform, state-sponsored curriculum reforms, state fiscal reductions, potential teacher shortages, and progress in the development of telecommunication technology have all helped to make distance education an inviting option for rural American schools (Barker, 1991). In 1987, there were fewer than ten states promoting distance learning programs. Currently, all 50 states have incorporated some type of distance education plan (Jordahl, 1991; Krebs, 1991).

Batey and Cowell (1986) describe distance education as a "catch all" phrase for something as old as correspondence courses to something as new as interactive instruction by satellite. Keegan (1990) described distance education as training approaches characterized by the separation of instructor and students. Another broad definition of distance education has been offered by Barker, Frisbie, and Patrick (1989) who view it as "the live simultaneous transmission of a master teacher's lessons from a host classroom or studio to multiple receiving site classrooms in distance locations." Regardless of definition, rural schools across the United States are beginning to use more distance learning technologies to help them offer elective or required courses for which a certified teacher is not available, or to deliver inservice training for faculty and staff.

Because there are a number of distance education technology systems available to rural schools, it's important that rural school administrators and staff members consider which system(s) best meet(s) their needs. Barker (1992) suggests that school

systems address the following questions prior to selecting a distance education technology system:

1. "Is the system to be used primarily as enrichment, or will it be used as the chief means of instruction in a particular class or curriculum?

2. Will the system be expected to fulfill state-mandated curriculum requirements, or will it be used only to offer elective courses?

3. Will the system be used by specific types of students (e.g. advanced placement, homebound, or general course students), or will the system be used by all types of students?

4. Is the system expected to be used to deliver inservice training for the staff, and/or to provide classes for the community?" (p. 5-6)

Barker suggests that schools consider these questions relative to short-term needs and long-term goals. Additional concerns cited by Barker include:

1. Who controls the system?
2. What will the system cost?
3. What courses will be offered through the system?
4. How will scheduling be arranged?
5. What should class sizes be?
6. What level of teacher-student interaction is projected?
7. Who will be selected as tele-teachers?
8. Who will be selected as classroom facilitators?
9. How will grading be accomplished?
10. How will class materials be routed?

According to Rios (1986), delivery options for distance education can fit into four categories:

- Print-based
- Audio-based
- Video-based
- Computer-based

Rios notes that among the most popular technologies being used today are:

- Audio teleconferencing
- Videotaped lessons

- Interactive video
- Computer networks

Delivery of these technologies can be accomplished by electronic mail, satellite transmission, cable T.V., instructional T.V. fixed service, and computer fax.

A more specific definition of some of the interactive distance technologies have been addressed by Barker (1992) who provided the following definitions:

"Audio Conferencing:	telephone contact between two or more sites, usually connected by means of a telephone bridge and via speaker phones
Audiographic Systems:	combination of an audio conference used with graphic support, such as electronic blackboard, writing tablet, still video, or computer-generated visual material
Broadcast Television:	transmission of picture (video) and sound (audio) over standard UHF and VHF television channels
Direct Broadcast Satellite (DBS):	full motion television programming transmitted via satellite directly to the user, who receives video and audio information using a satellite antenna or receiver dish
Fiber Optics:	a rapidly emerging medium that transmits voice, full-motion video, and data by sending light impulses through ultra-thin glass fibers... permits two-way, full motion video, and two-way audio interaction between participating sites
Instructional T.V. Fixed Services:	ITFS is a one-way microwave technology capable of serving limited geographical areas (maximum distance is a radius of 20 miles)... interactivity requires the use of telephones" (p. 15-16)

While rural school systems explore the various options available to them for distance education, they should bear in mind the advantages as well as the disadvantages of distance education programs. Howard, Ault, Knowlton, and Swall (1992) identify several benefits as well as cautions associated with distance education through technologies. Among the benefits cited were: support services to teacher

trainees; support for teacher inservice; support services for administrators; support services for parents; support services for support personnel; and direct services for students. The direct service to students include offering courses to remote areas that are not able to offer such courses due to limited numbers of qualified faculty in specific content areas. Direct services also include distance education for students with severe medical or disabling conditions in rural or remote areas who have difficulties attending formal school classes.

Howard et al. also identify several cautions to take when planning distance education. Among their concerns are the questions of whether or not distance education has proven to be an effective teaching method for all students, and whether or not distance education may be a direct violation of the spirit of inclusion/integration found in PL 94-142. Howard et. al. summarize their position by encouraging educators to use caution, but to embrace the provision of new opportunities such as distance education to enhance learning in rural and remote areas. The rapid advances in modern telecommunication technologies offer exciting new possibilities for rural preservice and inservice teachers.

Project CREST: A Distance Education Program for Rural Preservice and Inservice Teachers

One example of a preservice/inservice training program that explores the use of distance education for rural faculties is Project CREST (Collaboration in Rural Education for Special Teachers). CREST is a four year federal grant awarded by the U.S. Office of Special Education and Rehabilitation Services to the Special Education Department at Bowling Green State University. The major goals of Project CREST are: 1) to train teachers to effectively meet the academic, social, vocational, and ancillary service needs of rural special education students; 2) to improve the quality of training to rural special education preservice trainees; and, 3) to assist in the recruitment and retention of teaching personnel specifically trained for rural special education. In accomplishing these goals, Project CREST trains participants to enhance service delivery systems for: assessment; physical therapy; occupational therapy; speech/language therapy; community resource utilization; and consultation with interdisciplinary personnel, support staff, and parents. Project CREST participants also broaden their instructional skills to accommodate cross-age, cross-categorical service delivery. Finally, participants learn to identify problems and develop solutions unique to special education service delivery in rural settings. Project CREST provides participants with a unique opportunity to demonstrate and refine knowledge and skills developed collaboratively by agency personnel, parents, and university instructors. Participants demonstrate competencies and skills in practicum sites. This field-based component is interwoven throughout all coursework.

Project CREST serves up to 10 teachers or CREST participants, located in southern Ohio, while CREST faculty are located at Bowling Green State University in northwest Ohio. CREST faculty spend one week each month on-site in Portsmouth, Ohio to deliver instruction. During the three remaining weeks, participants meet

for one evening each week at the Pilasco-Ross SERRC for class. For weekly class meetings, the following distance learning options are used.

- A Polycom Soundstation ($991.85)
- Two 7100/80 Power Macintosh Computers with AV capability ($3,623 each)
- One Flexcam multimedia camera (Provides state-of-the-art technology for applications such as video newsletters, instructional programs, reports, presentations, scanning and video annotation. $595.00)
- One Quickcam digital video and still camera (Easy-to-use digital video and still camera. Uses direct digital imaging techniques to create grayscale QuickTime movies and still pictures. $94.12)
- Cu-SeeMe, a desktop video conferencing system developed at Cornell University with the optional audio program, Maven. (By public domain)

The primary advantages of this technology are its costs and portability. Relative to costs, many teleconference or distance learning centers require satellite transmitters and receivers, fiber optic cable, technical staff, and significant computer support to operate the system. In contrast, Cu-SeeMe is currently free since the video conference program relies on the Internet for transmission. Typically, there are no long distance telephone charges since connections via phone lines are paid for differently. Since cost for staff development would be a significant consideration for rural schools, use of this configuration may provide a low-cost approach in the delivery of professional training in such schools.

Further, geographic barriers common to rural and remote schools may be overcome through the use of this teleconferencing configuration. Cu-SeeMe, running on the Internet network sends and receives video to and from a central reflector, typically a Sun workstation equipped with software developed at Cornell. Through modern technology used in distance learning, rural barriers such as terrain, distance, or weather may be overcome.

Concluding Remarks

The need for special educators in rural settings to have more comprehensive preparation is increasingly obvious. Many resources, services, and specialized personnel are frequently unavailable to the rural handicapped student on a timely and consistent basis. Consequently, it has been shown that special education staff in rural settings are required to possess broader and more diverse skills, to be more able to operate independent of other special educators and other special education services, and to be highly skilled at adaptation and accommodation, as well as a host

of other more specific abilities. In order to address these needs, university teacher training programs and rural schools can collaborate through distance education programs to promote innovative preservice and inservice education. While still in our infancy relative to the sophisticated use of technology, Project CREST has begun to break barriers that traditionally impede professionals. Moreover, through our utilization of technological advancements, we have begun to seriously meet the needs of rural school personnel in the area of staff development and inservice.

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